

## **ABSTRACT**

Some embodiments of the invention provide a method of generating a multi-layer topological path for a layout that has multiple layers. This method specifies a set of path expansions from a first topological item to a second topological item on a first layer of the layout. For a potential via expansion from the second topological item to a third topological item on a second layer of the layout, the method (1) identifies a first region on the first layer for the second topological item, (2) identifies a second region on the second layer for the third topological item, (3) determines whether an intersection of the first and second regions is sufficiently large to contain a via, and (4) if the intersection is sufficiently large, adds the potential via expansion to the specified set of path expansions.